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Abstract

This paper compares and analyses the East and West German levels of labour productivity in industries in 1936. For this purpose archive-data on the industrial census of 1936 were used. In comparison with earlier studies, which rely directly or indirectly on the official publication of the census, these archive data have the advantage of not being distorted by aggregations for military-strategic reasons. Furthermore a statistical division of what later became East and West Berlin could be made.

The present paper confirms the conclusions on the relative productivity in earlier research: in 1936 East Germany realised a lower productivity level in the industrial sector than West Germany. The differences are primarily explained by structural differences due to specialisation resulting in a relatively large "Basic and Fabricated Metal" branch in West Germany and a large branch "Textiles and Wearing Apparel" in East Germany.

Furthermore this paper signals a higher aggregate capital intensity in West Germany, which is related to the large share of mining industries. Furthermore the East German level of education was below that of West Germany . Finally institutional differences are likely to have played a role since the major industrial agglomerations of East and West Germany were part of two different "industrial orders".

[1] This paper is based on archival material of the Bundesarchiv in Berlin-Lichterfelde. It was traced there by Rainer Framdling and the author of this paper. A special publication on the detailed census material is forthcoming in: Rainer Fremdling and Jaap Sleifer (2000), The German Industries in 1936. I am grateful to my colleagues at the economic history departments in Groningen for comments on earlier drafts of this paper.

1. Introduction

This paper compares value added per person employed in the industrial sector of East and West Germany[2] in 1936 and explains the differences by comparing capital input, labour input, and institutional differences in industrial organisation. First I will describe some background on the data in the archives, the official publication on the industrial census, earlier publications on the subject and the reasons for distinguishing East and West Germany before World War II.

After some brief remarks on the statistical division of East and West Germany and of the industrial production within the area of Berlin, the results of my calculations on the archive data will be presented and compared to earlier research (section 3).

Finally the causes of the productivity differences between East and West Germany are investigated (section 4). This section compares the compositional structure of production, the role of physical capital, the role of human capital and some institutional differences.

[2] The geographical distinction of East and West Germany in this paper refers to the territory of respectively the German Democratic Republic and the Federal Republic of Germany from 1949 to 1989.

2. Improving the Statistical Record for 1936

Background

Why should we distinguish between East and West German industries in 1936? At that time the two Germanies did neither exist as separate political entities, nor did they exist as independent economic regions. However, the distinction of East and West German industries in 1936 is a useful tool for the understanding of the two economies after they were truly separated in 1949.

Firstly in 1936 both "Germanies" were still in the same statistical system. Hence the data for the two regions are comparable, in contrast to most of the data after the Germanies were separated. Secondly a 1936 benchmark can provide data to shed light on the debate on the initial conditions - were the East German initial conditions unfavourable? Thirdly national figures for 1936 are probably inadequate for an analysis of the two German economies. In his study on the German economic development during the 19th century Tipton (1976) concluded the following.[3]

> *Aggregate national figures are always the weighted means of regional figures, but in Germany regional figures varied widely and the differences tended to become greater over time. Their weighted mean, the national average, therefore becomes progressively less representative of the course of development in any given region and from this point of view obscures rather than clarifies the process of development.*

Although the regional differences became less pronounced during the Weimar Republic, many differences remained. Several scholars compared the East and West German economies of 1936. The view that the East German labour productivity in manufacturing was below the West German level is generally accepted. Van Ark (1996) estimated the East German labour productivity in manufacturing at 83.9 percent of the West German level[4], Ritschl (1996) estimated it somewhat higher at 87.5 percent of the West German level.[5]

The ultimate source for the comparison of these productivity differences is the industrial census of 1936, and in particular the official publication on this census: *Die deutsche Industrie*.[6] The industrial census shows figures on employment and sales value at the level of industrial branches for the different regions, the German provinces and *Länder*. This enables us to distinguish East and West Germany.[7]

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[3] Frank B. Tipton Jr., *Regional Variations in the Economic Development of Germany During the Nineteenth Century* (Connecticut 1976) pp 143, 144

[4] Bart van Ark, "Convergence and Divergence in the European Periphery: Productivity in Eastern and Southern Europe in Retrospect", in B. van Ark and N.F.R. Crafts, eds., *Quantitative Aspects of Post-War European Economic Growth* (Cambridge 1996) pp 271-326

[5] Albrecht Ritschl, "An exercise in futility: East German economic growth and decline, 1945-89" in: Nicholas Crafts and Gianni Toniolo, *Economic growth in Europe since 1945* (Cambridge 1996)

[6] Reichsamt für wehrwirtschaftliche Planung, *Die deutsche Industrie: Gesamtergebnisse der amtlichen Produktionsstatistik* (Berlin 1939)

[7] See Annex B for a more extensive discussion of this source.

It is important to notice that there was regulation on the regional statistics.[8] A letter of Dr Leisse, the director of the Statistischen Reichsamts, makes clear that these regulations influenced the publication of *Die deutsche Industrie*. He wrote:[9]

> *Die Wahrung der Geheimhaltungspflicht bei solchen Zahlen, deren Veröffentlichung aus wehrwirtschaftlichen Gründen oder wegen des Betriebsgeheimnisses nicht statthaft ist, insbesondere bei den Mengenangaben über Rohstoffverbrauch und Erzeugung einzelner Güterarten und bei regionalen Aufgliederungen, ist besondere Aufmerksamkeit zu widmen.*

It is clear that *Die deutsche Industrie* does not present all essential statistics. What are the central problems in using this publication for an East-West division of Germany?

a) The category "sonstige Länder" includes Anhalt, which should be added to East Germany, and it includes Braunschweig, Bremen, Lippe, Lübeck, and Schaumburg-Lippe, which should be added to West Germany.
b) In the case of *Betriebsgeheimnisse* it shows aggregations of the specific branch of several provinces or *Länder*. These aggregations are marked with notes.
c) Furthermore some branches are not mentioned *aus wehrwirtschaftlichen Gründen* (on grounds of state security).

The *Länderrat des Amerikanischen Besatzungsgebiets* published the benchmark for 1936[10] using the publication *Die deutsche Industrie* and dealt with the omissions under (a) and (b). The third omission is not recognized, or at least not mentioned. Their attempt involved major interpolations, using the *Nichtlandwirtschaftlichen Arbeitsstättenzählung von 1939*. The results are differentiated for industrial branches in 1936, distinguished per *Besatzungszone*. A distinction between the industries in East and West Berlin cannot be made using this source, nor can it be made using *Die deutsche Industrie*.

Compared to applying interpolation techniques, the alternative of using the underlying data of the census is to be preferred. In this respect the publication of Gleitze[11] offers some improvements over the *Statistisches Handbuch*. Gleitze also succeeded in separating East and West Berlin for some of the industrial branches and he traced the aircraft industries.

Though the aircraft industries were the most important bias in *Die deutsche Industrie* for reasons of state security (c), there are some other branches which were excluded for the same reason. Especially the absence of the "Zündererzeugung", the production of detonators, is an important indication for the omission of other branches. A letter of the *Oberkommando der Wehrmacht* to the *Abwehrbeauftragten des Reichsamts für Wehrwirtschaftliche Planung* suggests that this branch belongs to the prohibition *aus wehrwirtschaftlichen Gründen* (c).[12]

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[8] BArch R3102/ 3082, Blatt 1
[9] BArch R3102/ 3082, Blatt 5
[10] Länderrat des Amerikanischen Besatzungsgebiets, *Statistisches Handbuch von Deutschland 1928-1944* (München 1949)
[11] Bruno Gleitze, *Ostdeutsche Wirtschaft: Industrielle Standorte und volkswirtschaftliche Kapazitäten des ungeteilten Deutschland* (Berlin 1956)
[12] BArch R 3102/ 3082, Blatt 39-42. This letter was sent on the 18th of August in 1939, three months after the publication of *Die Deutsche Industrie*. The *Oberkommando der Wehrmacht* tried to find out who permitted the publication, and made clear that it was not very pleased. (He called it *ausserordentlich bedenklich*). One of the objections was that it would be too easy to retrieve the capacity of "Zündererzeugung". In the response (BArch R 3102/ 3082, Blatt 37-38) it is denied that these figures could be retrieved from *Die Deutsche Industrie*.

The statistical division of East and West Germany in 1936

Documents in the Bundesarchiv[13] allow improvements in comparison with the official publication described above, because one can start from a lower aggregation level. Firstly this makes it possible to separate Anhalt and the other *Länder* that were in the category "sonstige Länder". Secondly there are fewer aggregations on behalf of the *Betriebsgeheimnisse*. Finally it is possible to distinguish 300 industries, in comparison to only 122 in *Die deutsche Industrie*.

In addition to the aircraft industries that were already traced by Gleitze, I obtained data on the production of industries which are army related such as "Schusswaffenindustrie" (firearm industries), "Herstellung von Zündstoffen und Sprengkapseln" (Production of ignition and caps) and "Sprengstoffindustrie" (Explosives).

Hence it is possible to improve the 1936 benchmark with these materials on the industrial census in the archives. However, a division of East and West Berlin on the basis of these documents is still not possible.

The separation of industrial production within the area of Berlin

A division of East and West Germany also necessitates a division of Berlin (East-West). Gleitze[14] offers data which separates East and West Berlin for some of the industrial branches. Literature shows some short-cut solutions, in particular a split of Berlin in two parts of 50 percent each.[15] The 50 percent division is necessarily arbitrary, and it overestimates the economic performance of East Berlin.[16]

The differences between the two methods are too small to have a lot of influence on the aggregate figures for East and West Germany. On a branch level, however, a short-cut solution is not appropriate. For instance the sector electrical engineering was primarily located in Berlin.[17] Therefore an analysis of the branch composition data on the division of East and West Berlin is required.

Documents in the Bundesarchiv show statistics of employment in manufacturing which are classified per *Kreis*, which in the case of Berlin meant a classification per *Stadtbezirk.*[18] These documents enable an East-West division for Berlin. The table below shows the results.

[13] BArch R 3102/ 3309
[14] Bruno Gleitze, *Ostdeutsche Wirtschaft* (Berlin 1956)
[15] Nienke Beintema and Bart van Ark, *Comparative Productivity in East and West German Manufacturing before Reunification* (Groningen 1993)
[16] According to the population size the East-West division of Berlin should be 36.6 (East) and 63.4 (West) percent, and according to the area size it should be 45.3 (East) and 54.7 (West) percent.
[17] Jaap Sleifer, *United, Divided and Reunited*, pp 18
[18] BArch R 3102 3648-3651, of which R 3102 3651 contains Berlin

Table 1. Number of Persons Employed in Berlin, East Berlin and West Berlin in 1936

		Archives		Employment-%	
	Berlin	East	West	East	West
Mining	0	0	0	0	0
Food, Beverages, Tobacco	34999	18595	16404	9	5
Textiles, Wearing Apparel	63100	46463	16637	21	5
Leather Products, Footwear	8779	5683	3096	3	1
Wood Products, Furniture	16124	9268	6856	4	2
Paper and Printing	46815	12905	33910	6	9
Chemicals, Rubber, Plastic, and Oil Refining	23142	7856	15286	4	4
Stone, Clay, Glass	6001	1567	4434	1	1
Basic and Fabricated Metal Products	39416	10507	28909	5	8
Machinery and Transport	87080	20033	67047	9	19
Electrical Equipment	146649	34162	112487	16	31
Metal and Fine Mechanics	31197	7918	23279	3	7
Construction	48714	32931	15783	15	4
Utilities	23429	8973	14455	4	4
	575445	**216861**	**358583**	100	100

Sources: BArch R 3102 3651; BArch R 3102 3309
Note: The overall Berlin figures are from the official publication and were splitted to East and West Berlin using the data from the archives. They are adjusted for points (b) and (c) of page 4.

The table shows several major differences between the industrial structures of East and West Berlin. The branches "Machinery, Transports" and "Electrical Equipment" were primarily located in West Berlin, the branches "Textiles, Wearing Apparel" and "Construction" were relatively large in East Berlin.

Unfortunately the registers are not clear on the exact date to which these documents refer. According to the registers (*Findbücher*) it is probably 1936.[19] If the documents refer to 1936 they ought to correspond to the documents of the industrial census which were discussed above. A comparison of these documents revealed that the Berlin figures indeed refer to 1936. Though there are some differences, many branches show exactly the same number of people employed in both documents. Especially some industries which are likely to have experienced strong fluctuations in the number of persons employed, such as "Schusswaffenindustrie", or the industries of the branch "Eisenschaffende Industrie" show the same figures in both documents.

[19] At least the documents must be of a date after September 1933, since the *Bezirk* "Friedrichshain" was refered to as "Horst Wessel", a name it was given at September 27 in 1933. Thus there are three possibilities to which the documents could refer to: either it refers to 1936 or it refers to one of the *Arbeitsstättenzählungen* which were held in June 1933 and Mai 1939.

3. Productivity differences

This section shows the results of the comparison of East and West German industry using the original material of the archives. The industrial classification which is used is listed in Annex A. Since the industrial census offered data on sales value instead of value added, additional calculations were necessary. These calculations can be found in Annex B.

In that respect it is important to be aware of differences between the concept *Bruttoproduktionswerte* (gross output) and *Nettoproduktionswerte* (net output): "Bruttoproduktionswert" includes "Rohstoffe, Halbfabrikate, Kraftstoffe" (raw materials, semi-fabrics and energy), and "Nettoproduktionswert" refers to value added, which is "Bruttoproduktionswert" minus "Rohstoffe, Halbfabrikate, Kraftstoffe". Furthermore the difference between "Absatzwert" (sales value) and "Bruttoproduktionswert" is important as the latter includes changes in inventories.

Table 2. Net Output, Employment and Labour Productivity in East (EG) and West (WG) German Industries in 1936 and East German labour productivity as a percentage of West Germany

	Net Output		Persons Employed		Labour Productivity (Net Output per Person Employed)		EG
	EG	WG	EG	WG	EG	WG	WG = 100
Mining	421389	1523602	88794	403338	4746	3777	125.6
Food, Beverages, Tobacco	915811	2396656	160364	386711	5711	6198	92.1
Textiles, Wearing Apparel	1507697	1972997	466587	597023	3231	3305	97.8
Leather Products, Footwear	161064	507026	47336	141336	3403	3587	94.8
Wood Products, Furniture	282559	648694	102284	220645	2762	2940	94.0
Paper and Printing	459559	861986	129500	218264	3549	3949	89.9
Chemicals, Rubber, Plastic, Oil Refining	728931	1823479	111976	237055	6510	7692	84.6
Stone, Clay, Glass	458260	1032814	160033	318484	2864	3243	88.3
Basic and Fabricated Metal	729919	3709292	179532	832092	4066	4458	91.2
Machinery and Transports	1307540	2514275	304726	520108	4291	4834	88.8
Electrical Equipment	333725	1002129	74229	217202	4496	4614	97.4
Optics, Fine Mechanics	319721	584070	112614	203848	2839	2865	99.1
Construction	1066543	2022915	322673	604247	3305	3348	98.7
Utilities	412347	986918	48261	114091	8544	8650	98.8
Total	**9105066**	**21586854**	**2308910**	**5014443**	**3943**	**4305**	**91.6**

Source: Annex B

The table above shows "Net Output", "Persons Employed", and "Labour Productivity" for both Germanies. In the last column it shows the East German labour productivity as a percentage of West Germany. It is shown that except for mining the East German level of labour productivity was below West Germany in every branch.

Table 3 compares the results of the calculations on the basis of the archive material with estimates from earlier studies on the relative East-West productivity levels in industry.

Table 3 Relative East-West Productivity level in Industry in 1936

Author	Source	Sales Value per person employed	Value Added per person employed
This Study	Industrial Census	87.6	91.6
Melzer (1980)	Gleitze, Die deutsche Industrie	91.0	87.4
Van Ark (1996)	Statistisches Handbuch	83.9	-
Sleifer (1999)	Die deutsche Industrie	-	92.5

What are the main reasons for the differences between the estimates? Firstly, when comparing the different estimates on sales value, the estimate by Van Ark (1996) is the lowest which is explained by the fact that the industrial sector is confined to manufacturing. The East German mining industries realised a relatively high productivity level. As far as the other two estimates are concerned it is important to notice that Melzer refers to "Brutto-produktionswert", whereas this study refers to "Absatzwert" (sales value). As was shown above, the difference between these concepts is that *Bruttoproduktionswert* takes changes in inventories into consideration.

Secondly the estimates on value added. The results of this study correspond closely to my earlier calculations using *Die deutsche Industrie*. There is, however, an interesting difference between this study and the calculations of Melzer. Melzer shows that the relative East German productivity performance is better if it is judged from sales value per person employed, than if it is judged from value added per person employed whereas I show the opposite. The implication is that Melzer's data suggest that East German industries used more raw materials and/or unfinished goods, whereas according to my data West German industries used more of these materials and goods. Alternatively the difference might be due to estimates of net inventories.

Nevertheless on the whole all four pictures are quite similar as all estimates put the relative East German productivity in industry as a percentage of West Germany at about 90 percent. Therefore I will leave the difference between the data of Melzer and the data of this study for future research. The remainder of this paper focusses on the explanation of the differences between East and West German labour productivity.

4. Explanations for the productivity differences between East and West Germany

The composition of production

In the previous section a productivity difference between East and West Germany was observed. Since there are large differences in levels of average labour productivity between the industrial branches, it is clear that for the aggregate labour productivity it matters in what branches the labour force is employed. The table below shows the branch shares and branch average labour productivities for East and West Germany.

Table 4. Employment shares and labour productivity in East and West German industrial branches in 1936

	East Germany		West Germany	
	Employment %	Productivity	Employment %	Productivity
Mining	4	4746	8	3777
Food, Beverages, Tobacco	7	5711	8	6198
Textiles, Wearing Apparel	20	3231	12	3305
Leather Products, Footwear	2	3403	3	3587
Wood Products, Furniture	5	2762	5	2940
Paper and Printing	6	3549	4	3949
Chemicals, Rubber, Plastic, Oil Refining	5	6510	5	7692
Stone, Clay, Glass	7	2864	6	3243
Basic and Fabricated Metal	7	4066	15	4458
Machinery and Transports	13	4291	12	4834
Electrical Equipment	3	4496	4	4614
Optics, Fine Mechanics	5	2839	4	2865
Construction	14	3305	12	3348
Utilities	2	8544	2	8650
Total	**100**	**3943**	**100**	**4305**

Sources: see table 1

Table 4 shows the employment shares and labour productivity in East and West German industrial branches in 1936. It makes clear that the branch composition was favourable for West Germany in several respects. First East Germany had a relatively large labour force in "Textiles, Wearing Apparel", a sector with low productivity levels. Second West Germany had a relatively large employment share in "Basic and Fabricated Metal", a sector with a productivity level above average. What is the effect of structure? And what is the intra branch effect?

Shift share analysis allows the estimation of these two effects. Pioneers in this type of analysis were Kuznets, Chenery and Syrquin. The following equation was derived from Timmer

(1999)[20], where LP = Labour Productivity and S_i = Share of employment in particular branch or industry.

$$LP^{West}-LP^{East} = \sum_{i=1}^{n} (LP_i^{West}-LP_i^{East}) \frac{1}{2}(S_i^{East}+S_i^{West}) + \sum_{i=1}^{n} (S_i^{West}-S_i^{East}) \frac{1}{2}(LP_i^{East}+LP_i^{West})$$

In the right hand side of the equation differences of labour productivity are decomposed into an "intra branch effect" and a "structure effect". The "intra branch effect", which is the first term, accounts for differences in branch productivities. The "structure effect" is in the second term and accounts for differences in employment structures.

If these calculations are carried out at industry level the differences between East and West German labour productivity can be attributed to intra branch effect for 62.7 percent, and to structure effect for 37.4 percent. Related to the difference of the level of average labour productivity in industries in the two Germanies (8.4 percent) this means that 5.3 percent is related to the intra branch effect and 3.1 percent is related to the structure effect.

The existence of differences in the structure of employment can be explained by referring to trade theories: on the basis of comparative advantages within Germany there was regional specialisation. Nevertheless it is interesting to notice why "Mining" and "Basic and Fabricated Metal" were more developed in West Germany. For "Textiles, Wearing Apparel" it should be asked why this sector was more developed in East Germany. The next section analyses these differences in more detail. This section continues with the examination of the intra branch effect by comparing capital intensity and human capital in the two Germanies.

The Role of Physical Capital

For the explanation of the labour productivity differentials in industry between East and West Germany the difference in factor inputs (capital and labour) will be analysed. According to economic theory production is primarily determined by labour input and capital intensity. If workers have the ability to use capital, they are able to realise a higher output per worker. This simple notion of the "ability to use" has two distinctive elements. First the equipment has to be available, second the workers have to know how to use the equipment and how to organize the production process (human capital). The availability of equipment is measured by the capital-intensity.

Table 5 estimates the capital stock in East and West German industrial branches. Figures on capital per branch for Germany as a whole were linked to data on employment for Germany as a whole, which allowed the calculation of the capital-labour ratio per branch. It is important to notice that Germany as a whole consisted of East Germany, West Germany, and territories east of the Oder-Neisse. The capital-labour ratios are assumed to have been the same in all parts of Germany, which made it possible to estimate capital stock using the statistics on employment.

[20] Marcel Timmer, *The Dynamics of Asian Manufacturing: A Comparative Perspective, 1963-1993* (Eindhoven 1999) pp 109-112

As the capital labour ratios at a branch level were assumed to have been the same in all parts of the country, it is not possible to observe intra branch capital intensity differences. Logically all differences that are observed should be attributed to differences in employment structures.

The West German K/L-ratio is estimated at 1.449 and the East German ratio at 1.203 which suggests that related to differences in the compositional structure East German capital intensity was 83 percent of the West German level.

Unfortunately the table below does not show whether there are intra branch differences of the K/L-ratio. However, according to a comparison of the capital stock in current *Reichsmark* per head of the population in East and West Germany for the total economy in 1936 the East German capital stock was at 88 percent of the West German level.[21] This is fairly close to the level that was calculated below.

Furthermore it suggests, assuming that methods of depreciation were approximately the same in East and West Germany, that intra branch differences were of minor importance.

Table 5. German capital and capital-labour ratio, East and West German employment and estimated capital in East and West German industrial branches in 1936

Branch	Germany as a whole		West Germany		East Germany	
	Capital (1)	K/L-ratio (2)	Employment (3)	Estimated Capital Stock (4)=(2)*(3)	Employment (5)	Estimated Capital Stock (6)=(2)*(5)
Bergbau	3024376	5.341	403338	2154228	88794	474249
Steine und Erden	266925	0.658	242637	159655	95865	63079
Eisenschaffende Industrie	356872	1.773	182387	323372	13276	23538
Nichteisenmetalindustrie	210554	0.848	172976	146684	61702	52323
Keramische Industrie	89464	1.023	46321	47386	34153	34939
Glasindustrie	86680	1.178	29526	34782	30015	35358
Eisen u. Stahlwarenindustrie	124836	0.272	356076	96853	91423	24867
Maschinenbau (a)	600128	0.956	404942	387125	193613	185094
Fahrzeugbau u. Schiffbau	394969	1.626	187975	305647	47762	77661
Elektrotechnische Industrie	753023	2.560	217202	556037	74229	190026
Feinmechanisch u. Optisch	61583	0.635	64646	41050	30842	19585
Chemische Industrie	1715317	5.888	185950	1094874	98878	582194
Textilindustrie	720964	0.790	484518	382769	367522	290342
Papier u. Druckgewerbe	323804	0.844	218264	184215	129500	109298
Kautchuk u. Asbest	77013	1.348	45740	61658	10994	14820
Leder, Linoleum, Schuhe	161077	0.786	146701	115307	49440	38860
Holz, Schnitzstoff	45277	0.122	220645	26919	102284	12479
Nahrungs u. Genussmittel	1011765	1.722	373310	642840	153506	264337
Bekleidungsgewerbe	15000	0.065	112505	7313	99065	6439
Baugewerbe	72365	0.067	604247	40485	322673	21619
			4699906	6809199	2095536	2521107

Sources: BArch R 3102/ 3309; Statistisches Jahrbuch für das Deutsche Reich, JG 56/1937. (Olms Microform System) pp 422-423

[21] See Annex C

Returning to the effects of differences in the structure of employment it reveals that mining makes up the large part of the difference. Whereas the total industrial sector suggests that the East German capital intensity was 83 percent of the West German level, without mining the East German capital stock almost equals the West German capital stock.

The role of human capital

The previous section showed that the different output per person employed cannot be explained by differences in physical capital intensity in the two Germanies for aggregate manufacturing. This means that the first element, the "availability of equipment", is not a bottleneck which can explain for the comparatively low East German productivity level. The second element, the human capital component will be examined below.

In a comparison of productivity in Germany and Great Britain, Broadberry and Fremdling used wage differences as an indicator of differences in the level of human capital.[22] If this indicator were used in our comparison between East and West Germany, based on the average hourly earnings of masons by region as in Bry (1960), the following picture would emerge.

At the beginning of the interwar period there existed huge differences in the level of wages; which showed a pattern of high wages in the north-west, and low wages in south-east Germany.[23] During the Weimar Republic (1919-1933) and the early years of Nazi-rule the differences disappeared. Though it is difficult to make exact calculations of what was East and what was West Germany with regard to Bry's data, the suggestion is that human capital was initially of better quality in West Germany, but during the interwar period East German human capital improved and caught up with the West German level.

It is questionable whether the convergence of the level of wages really showed a catching up of East German human capital. Alternatively it can be attributed to the government policy to narrow regional wage differentials in order to avoid low-cost competition.[24] Moreover there existed considerable wage differences between various industries. Nevertheless, if the average wages per industry are linked to the statistics of employment in the two Germanies, the East German wage level proves to have been merely 3 percent below West Germany (see Annex B).

Table 6. Pupils per 100000 of the Population in Lower (1938), Medium (1937) and Higher Education (1941)

	Lower Education	Medium Education	Higher Education
East Germany	11140	5100	8280
West Germany	11420	3460	11110

Source: Statistisches Handbuch pp 617-620

Note: Lower education = Öffentlichen Volksschulen; Medium education = mittleren Schulen; Higher education = höheren Schulen

[22] S.N. Broadberry and R.R. Fremdling, "Comparative Productivity in British and German Industry 1907-37" in: *Oxford Bulletin of Economics and Statistics 52* (1990) pp 403-421

[23] Gerhard Bry, *Wages in Germany 1871-1945* (Princeton 1960)

[24] Gerhard Bry, *Wages in Germany 1871-1945* (Princeton 1960) p 109

Instead of looking at wage differentials, it is also useful to examine differences of the education enrolment in East and West Germany. It is generally assumed that levels of high education improve human capital. The table below shows figures on the number of pupils in the two Germanies before they were split up.

Though the number of people in education are not a direct reflection of differences in the workforce at the time of the benchmark, it certainly gives some indication. Table 6 suggests there were still differences in the quality of the workforce between the two Germanies at the end of the inter war period. East German participation in higher education in particular was behind West Germany , which is partly compensated for by a higher participation in medium education. However, it is important to bear in mind that these figures exclude Berlin.

Explaining the location of production

In 1936 there were 3 major industrial agglomerations in Germany, which were largely located in Berlin, *Rheinprovinz/Westfalen*, and *Sachsen*. Whereas *Sachsen* is the area with the most ancient industrial roots, the Ruhr-area (*Rheinprovinz, Westfalen*) surpassed the importance of *Sachsen* during the late nineteenth and early twentieth century. At the same time Berlin realised unprecedented growth in industrial employment, after it had become the centre of large transportation networks, namely the railroads.[25]

The industries of Berlin depended very much on the embedding in a transportation network. Since Berlin did not have its own natural resources, the industries depended on supplies from outside. Therefore the industries of Berlin are primarily "light industries", since the transportation costs of the raw materials and half products are much higher in the "heavy industries".

Using the same reasoning it can be argued that "mining" and "metal industries" were largely located in the Ruhr area. Naturally mining depends on the availability of natural resources. Since the metal industries need coal for heating and iron ores to melt, which are characterised by high transportation costs , these industries tend to locate near the natural resources.[26] Apparently the industrial development of *Sachsen* was based on the availability of mineral resources as well. During the late 19th century the mining sector released employees because natural resources were exhausted, considering the means of extraction and the economic value. Possibly the existence of an industrial tradition favoured the development of the textile-industries.[27] In 1936 the sector Textiles in East Germany is largely located in *Sachsen*.

Furthermore there are explanations of a more institutional nature towards these locational differences. From the 1870s onwards the German *Länder* formed a political unity. Before that date the *Länder* had been in competition with each other, which can be illustrated by the development of the railroads in Germany. During the 1840s the governments of the *Länder* expected the railroads to cause "trade diversion" rather than "trade creation". Therefore, as

[25] Frank B. Tipton, Jr., *Regional Variations in the Economic Development of Germany During the Nineteenth Century* (Connecticut 1976)
[26] Sidney Pollard (ed.), *Region und Industrialisierung: Studien zur Rolle der Region in der Wirtschaftsgeschichte der letzten zwei Jahrhunderte* (Göttingen 1980)
[27] Sidney Pollard (ed.), *Region und Industrialisierung* (Göttingen 1980)

soon as a railway line was built in a neighbouring state its rival felt compelled to construct one as well, in order to counteract the assumed "trade diversion" effects.[28]

Before the establishment of the Weimar Republic the *Länder* had legislative powers with regard to culture, police, finance, law, and some special "Reservatrechten". According to Düwell this led to a pattern in which each of the *Länder* had a different character, or its own identity.[29] During the Weimar Republic the German government tried to bring more unity by a transfer of legislative powers to the *Reich*. This resulted in a struggle between the *Länder*, especially Prussia, and the *Reich*.[30] Herrigel concluded that "both the Weimar Republic and the Third Reich created only temporary or no stable set of national-level governance structures".[31]

Herrigel outlined two regionally distinct and competitive patterns of industrial development that developed parallel to (and sometimes conflict with) one another throughout all of German industrial history in the 19th and 20th centuries.[32] The major industrial agglomeration in "East Germany", *Sachsen*, is considered as what Herrigel called the "decentralized form of industrial order", whereas the heartland of "West German" industries, the Ruhr-area is qualified as the "autarkic form of industrial order".

The key features to distinguish these two industrial orders are the following. First the "decentralized industrial order" was embedded in a dense network of relations among and between producers and public and private institutions in particular regional political economies, whereas in the "autarkic industrial order" all aspects of production and its governance came, over time, to be entirely embedded within the institutional framework of the private firm. Secondly the size of the firms in the "decentralized industrial order" was primarily small and medium sized, whereas in the "autarkic industrial order" large firms were characteristic. Thirdly the emphasis of production in the "decentralized industrial order" was much more on specialty production, opposed to an emphasis on mass production in the "autarkic industrial order".

Table 7 compares the avarage employment per firm for the Ruhr-area (*Rheinprovinz*, *Westfalen*), *Sachsen*, and Berlin. Furthermore it shows the East and West German average (excluding Berlin). It is important to recognize that firm size may be an indicator which explains differences in the level of labour productivity.

Clearly the firm-size in industries shows significant differences between East and West Germany in general, and between their major industrial agglomerations in particular. To a large extent the different firm-size is analogue to the expectations on the basis of the industrial structure in the regions. Metal and iron industries are often extremely large firms. As was shown above, this branch was concentrated in West Germany.

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[28] Rainer Fremdling, *Eisenbahnen und deutsches Wirtschaftswachstum 1840-1879; Ein Beitrag zur Entwicklungstheorie und zur Theorie der Infrastruktur* (Dortmund 1985)
[29] K. Düwell, "Vom unitarischen zum kooperativen deutschen Föderalismus" in: J.P. Nautz and J.F.E. Bläsing, *Staatliche Interventionen und gesellschaftliche Freiheit* (Melsungen 1987) pp 31-38
[30] Karl Dietrich Bracher, Manfred Funke, and Hans-Adolf Jacobsen, *Die Weimarer Republik 1918-1933: Politik- Wirtschaft- Gesellschaft* (Bonn 1987)
[31] Gary Herrigel, *Industrial Constructions: The sources of German industrial power* (Cambridge 1996) p 142
[32] Gary Herrigel, *Industrial Constructions: The sources of German industrial power* (Cambridge 1996) p 19

Table 7. Employment per firm in Industry and crafts in German regions in 1939

Region	Industry	Crafts	Total
Rheinprovinz	26.3	3.2	10.3
Westfalen	23.2	3.5	10.2
Sachsen	9.4	3.4	7.4
Berlin	16.6	4.4	10.2
East Germany	12.7	3.4	7.4
West Germany	21.0	3.2	8.0

Source: Länderrat des Amerikanischen Besatzungsgebiets, *Statistisches Handbuch von Deutschland 1928-1944* (München 1949) p 245

Herrigel observed that in the Länder where the "decentralized industrial order" was dominant, the local authorities were reluctant to cooperate with the central government, and created an institutional setting which benefitted the continuation of the existing industrial order as much as possible. In that respect the local authorities probably influenced the institutional setting which influences a firm-decision on localization.

Furthermore there is a clear distinction between the East and West German participation in international trade. The table below shows that East Germany was relatively more important for the domestic markets, and West Germany traded more with non-German areas. Secondly the table shows that East German trade per capita was much higher than in West Germany.

Table 8. Trade of agricultural and industrial products per capita in 1936 in RM

	East Oder-Neisse	East Germany	Berlin	West Germany
Export				
- German areas	176.73	278.20	414.84	104.33
- Abroad	20.79	72.86	69.14	79.49
Import				
- German areas	166.34	271.58	483.98	101.84
- Abroad	41.58	46.37	92.19	67.07

Source: Bruno Gleitze, *Ostdeutsche Wirtschaft. Industrielle Standorte und volkswirtschaftliche Kapazitäten des ungeteilten Deutschland* (Berlin 1956) p. 6, p. 146
Note: Population figures of 1939.

International trade can be an important factor for the location of some industries. As was the case with the growth of Berlin in the nineteenth century, which was related to networks of transportation, the location of other industrial agglomerations may well be related to such networks of infrastructure. In that respect it was important for the development of the Ruhr area in comparison with Sachsen that international trade largely took place via West Germany. Firstly the markets of Western Europe were relatively important; secondly the West German harbours were more strategically located.

4. Conclusion

For a comparison of East and West German productivity performance in industry in 1936, archive data on the industrial census of 1936 allow major improvements of the official publication on the census and other publications on the subject. These data have the advantage of not being affected by aggregations for military-strategic reasons. Even a division of Berlin could be made.

Firstly the aggregate picture which was estimated in earlier research was confirmed by the underlying data in the archives: the East German labour productivity as a percentage of West Germany amounted to 91.6 percent. However, there are also some interesting differences with earlier studies. Whereas Melzer suggested that the use of raw materials and/or unfinished goods was highest in East Germany, my data suggests the use was higher in West Germany. This could be an interesting topic for future research.

Secondly it is shown that the difference between industrial labour productivity in East Germany compared with West Germany is explained by the composition of the labour force for 37 percent, and by intra branch effects for 63 percent. The compositional differences were related to the availability of natural resources and transportation costs. Since raw materials for the branch “Basic and Fabricated Metal” are rather expensive for transportation, these industries tend to locate near the natural resources, which was primarily in West Germany.

Thirdly the East German capital-labour ratio relative to West Germany was estimated at 83 percent. Unfortunately the method of estimation did not allow the observation of intra branch differences. However, the 83 for the industrial sector is fairly close to the 88 percent for the total economy. Therefore it is suggested that the different capital labour ratio is primarily related to a difference of composition, in particular the relatively large branch “mining” in West Germany, which used a lot of capital input.

Fourthly West German human capital should be valued at a higher level than human capital in East Germany and finally institutional differences are likely to have been eminent. The major industrial agglomeration in East Germany was part of the so-called “decentralized industrial order”, whereas the major industrial agglomeration in West Germany was part of the “autarkic industrial order”.

Annex A

This annex shows the industrial classification which is used in this paper. It resembles the international standard of industrial classifications of the United Nations.[33] The table below shows the categories of this paper (left) and the categories of the industrial census to which it responds (right).

Table of the Industrial Classification

Paper	**Industrial Census**
Mining	Bergbau (I)
Food, Beverages, Tobacco	Industrie der Öle und Fette, Futtermittel und tierischen Leime (XXVI); Spiritusindustrie (XXVII); Nahrungs- und Genussmittelindustrie (XXVIII)
Textiles, Wearing Apparel	Textilindustrie (XXIV); Bekleidungsindustrie (XXV)
Leather Products, Footwear	Lederindustrie (XXIII)
Wood Products, Furniture	Sägeindustrie (XVI); Holz verarbeitende Industrie (XVII)
Paper and Printing	Papier-, Pappen-, Zellstoff- und Holzstoffindustrie (XXI); Druck und Papierverarbeitung (XXII)
Chemicals, Rubber, Plastic and Oil Refining	Kraftstoffindustrie (II); Chemische Industrie (XVIII); Chemisch-technische Industrie (XIX); Kautschuk- u. Asbestindustrie (XX)
Stone, Clay, Glass	Industrie der Steine und Erden (XIII); Keramische Industrie (XIV); Glasindustrie (XV)
Basic and Fabricated Metal Products	Eisenschaffende Industrie (III); Nichteisenmetallindustrie (IV); Giessereiindustrie (V); Eisen- u. Stahlwarenindustrie (VI); Stahl- und Eisenbau (VIII)
Machinery and Transport	Maschinenbau (VII); Fahrzeugindustrie (IX); [einschliesslich Luftfahrtindustrie]
Electrical Equipment	Elektroindustrie (X)
Optics and Fine Mechanics	Metallwarenindustrie u. verwandte Gewerbe (XII); Feinmechanische und Optische Industrie (XI)
Utilities	Elektrizitäts- und Gasversorgung (XXIX); [Wasserversorgung]

The source of the industrial census is BArch R 3102/ 3309.

[33] United Nations, *International Standard Industrial Classification of all Economic Activities* (New York 1990) Series M/ No. 4, Rev. 3

Annex B Industrial Census	Employment East Germany	Employment West Germany	Sales Value East Germany	Sales Value West Germany	F (x)	Value Added East Germany	Value Added West Germany	Labour Productivity EG	Labour Productivity WG	Average Wages
I. Bergbau										
Eisenerzbergbau	413	14369	1706	51848	0.784	1338	40649	3239	2829	1637
Metallerzbergbau	8614	7574	11947	9650	0.574	6858	5539	796	731	1742
Stein- und Kalisalzbergbau	9745	7646	108921	78667	0.793	86374	62383	8863	8159	2375
Salinen	1216	1980	8682	16244	0.593	5148	9633	4234	4865	2151
Steinkohlenbergbau	16216	318215	54871	1338016	0.776	42580	1038300	2626	3263	2117
Kokereien	346	19779	8692	678939	0.217	1886	147330	5451	7449	2298
Presssteinkohlenfabriken	182	1889	4919	85373	0.221	1087	18867	5973	9988	1959
Braunkohlenbergbau	30767	17688	226030	140203	0.877	198228	122958	6443	6951	2118
Braunkohlenfabriken	20774	9775	239212	116641	0.319	76309	37208	3673	3806	2173
Erdölgewinnung	41	3664	120	47230	0.827	99	39059	2420	10660	2049
Graphitbergbau u. Graphitaufbereitung	0	373	0	1700	0.519	0	882		2365	1383
Flussspatbergbau und Flussspataufbereitung	480	386	1920	1027	0.772	1482	793	3088	2054	1334
Bernsteingewinnung u. verarbeitung	0	0	0	0	0.21					3373
II. Kraftstoffindustrie										
Steinkohlenschwelereien	0	9	0	111	0.281	0	31		3466	2409
Braunkohlenschwelereien	2656	818	43273	5520	0.208	9001	1148	3389	1404	2021
Herstellung von Montanwachs	368	0	8741	0	0.795	6949	0	18883		2528
Steinkohlenteerdestillation (einschl H.v. Dachpappe)	2106	6145	32905	129445	0.273	8983	35338	4266	5751	2259
Benzolreinigungsanstalten	154	858	9805	120811	0.221	2167	26699	14071	31118	2682
Gewinnung von Benzin u. anderen Mineralölderivaten	10790	3433	158796	151133	0.301	47798	45491	4430	13251	2474
Herstellung von mineralische Schmieröln und fetten	344	4168	6053	98918	0.397	2403	39270	6988	9422	*2582*
Herstellung von tierische Öln und Fetten	212	839	3070.2	15825	0.402	1234	6362	5812	7582	2038
III. Eisenschaffende Industrie										
Hochofenwerke	437	25372	11598	818567	0.251	2911	205460	6662	8098	2422
Flussstahlwerke (einschl.der damit verbundenen Stahlformgiessereien	4288	38341	97724	1400583	0.199	19447	278716	4535	7269	2409

	Employment East Germany	Employment West Germany	Sales Value East Germany	Sales Value West Germany	F (x)	Value Added East Germany	Value Added West Germany	Labour Productivity EG	Labour Productivity WG	Average Wages
Schweissstahlwerke	0	226	0	2393	0.333	0	797		3526	2345
Warmwalzwerke (einschl. Der damit verbundenen Hammer und Presswerke)	8551	118448	173039	2384152	0.277	47932	660410	5605	5576	2386
IV. Nichteisenmetallindustrie										
Kupfer-, Blei- und Silberhütten	2442	5740	45468	133185	0.156	7093	20777	2905	3620	2328
Kupferraffinerien und -elektrolysen	700	1139	46526	125710	0.082	3815	10308	5450	9050	2558
Gold und Silberscheideanstalten	290	396	27517	98140	0.089	2449	8734	8445	22057	2608
Zinkhütten	1118	3354	12558	23868	0.39	4898	9309	4381	2775	2428
Zinkhütten und Entzinnungsanstalten	7	689	140	15301	0.264	37	4039	5280	5863	2746
Tonerfabriken	639	1295	13365	26462	0.474	6335	12543	9914	9686	2558
Aluminiumhütten	2142	3211	66242	73910	0.352	23317	26016	10886	8102	2268
Gewinnung von Nickel und Kobalt	532	354	6813	10982	0.265	1805	2910	3394	8221	2379
Gewinnung von Wolfram, Molybdän u. anderen Metallbau	2335	760	45275	9917	0.47	21279	4661	9113	6133	2487
Herstellung von Ferrolegierungen, Elektrokorund, Karboround	1474	1762	34524	48031	0.445	15363	21374	10423	12130	2283
Walz-,Press-und Hammerwerke der Nichteisenmetallindustrie	10531	27867	213627	532063	0.371	79256	197395	7526	7083	2234
Herstellung von Warmpressteilen der Nichteisenmetallindustrie	1099	2067	18341	30269	0.381	6988	11532	6359	5579	2147
Metallschmelzereien	146	1029	5039	31166	0.244	1230	7604	8421	7390	1905
V. Giessereiindustrie										
Eisen-, Temper-, und Stahlgiessereien	32509	103474	171208	657587	0.674	115394	443213	3550	4283	1888
Metallgiessereien	5738	19839	45050	172134	0.52	23426	89510	4083	4512	1876
VI. Eisen- und Stahlwarenindustrie										
Drahtwarenindustrie	11572	51102	59386	417747	0.485	28802	202607	2489	3965	1665
Werkzeugindustrie	7173	26254	31909	142782	0.7	22336	99948	3114	3807	1558
Blechwarenindustrie	17717	61829	95038	318416	0.505	47994	160800	2709	2601	1549
Schloss- und Beschlägeindustrie	1651	18636	8584	107512	0.706	6060	75904	3670	4073	1596
Feine Schneidewarenindustrie (einschl. Schlägeindustrie	1035	14899	3330	100039	0.708	2358	70828	2278	4754	1616

	Employment East Germany	Employment West Germany	Sales Value East Germany	Sales Value West Germany	F (x)	Value Added East Germany	Value Added West Germany	Labour Productivity EG	Labour Productivity WG	Average Wages
Fahrzeugteileindustrie	13379	35705	90948	285336	0.631	57388	180047	4289	5043	1875
Herd- und Ofenindustrie	4217	21210	22678	121099	0.568	12881	68784	3055	3243	1742
Schusswaffenindustrie	9891	8959	44889	72889	0.759	34071	55322	3445	6175	1903
Sonstige Zweigen der Eisen- und Stahlwarenindustrie	24788	117482	160235	563891	0.553	88610	311832	3575	2654	1731
VII. Maschinenbau										
Werkzeugmaschinenindustrie	31007	57441	201386	431761	0.678	136540	292734	4404	5096	2097
Textilmaschinenindustrie	19940	9222	122321	53538	0.641	78408	34318	3932	3721	1982
Herstellung von Maschinen für das Bekleidungsgewerbe	9672	12993	44741	85414	0.702	31408	59960	3247	4615	1850
Landmaschinenindustrie	8573	25781	57359	196099	0.54	30974	105893	3613	4107	1790
Herstellung von Maschinen und Apparaten für die Papierherstellung, Papierverarbeitung und für das graphische Gewerbe	11630	12155	60696	72572	0.68	41273	49349	3549	4060	2059
Büromaschinenindustrie	17360	8146	90329	52330	0.83	74973	43434	4319	5332	2140
Herstellung von Maschinen und Apparaten für Müllerei, Nahrungsmittel- und Genussmittelindustrie u.ä.	9284	17899	49362	111908	0.672	33171	75202	3573	4201	1947
Armaturenindustrie	9555	13181	64281	103043	0.599	38504	61723	4030	4683	1806
Sonstiger Maschinenbau	61309	180827	438965	1418104	0.635	278743	900496	4547	4980	2159
Kessel-und Apparatebau	5318	16556	45318	164354	0.568	25741	93353	4840	5639	2055
VIII. Stahl- und Eisenbau										
Stahlbau	6259	36420	55209	308975	0.532	29371	164375	4693	4513	2123
Waggonbau	3675	10148	16151	62204	0.534	8625	33217	2347	3273	1838
Feld- und Werkbahnwagenbau	31	4173	224	32080	0.409	91	13121	2949	3144	1676
Schiffbau	3166	69912	15390	473661	0.543	8357	257198	2639	3679	2144
IX. Fahrzeugindustrie (einschl. Luftfahrtindustrie)										
Kraftfahrzeugindustrie	23683	85149	320000	1087477	0.439	140480	477403	5932	5607	2373
Herstellung von Kraftfahrzeuganhängern und Kraftfahrzeugaufbauten	12982	22528	101026	149364	0.528	53342	78864	4109	3501	1944

	Employment East Germany	Employment West Germany	Sales Value East Germany	Sales Value West Germany	F (x)	Value Added East Germany	Value Added West Germany	Labour Productivity EG	Labour Productivity WG	Average Wages
Fahrradindustrie und Herstellung von Kinderwagen	7931	10386	47863	80481	0.473	22639	38068	2855	3665	1742
Flugmotorenbau	15997	15636	133286	140100	0.571	76106	79997	4758	5116	2250
Flugzeugzellenbau	60485	32208	406696	204778	0.603	245238	123481	4055	3834	2317
X. Elektroindustrie										
Herstellung von elektrischen Maschinen, Apparaten und Zubehör der Stark- und Schwachstromindustrie	53629	186341	329622	1229757	0.654	215573	804261	4020	4316	2163
Kabelindustrie	9418	19893	102603	245280	0.526	53969	129017	5730	6486	2109
Elektrokohleindustrie	1808	3371	12382	25139	0.624	7727	15687	4274	4653	1938
Batterie- und Elementenindustrie	1477	1401	9958	9963	0.574	5716	5719	3870	4082	1598
Akkumulatorenindustrie	1589	2887	14054	37706	0.571	8025	21530	5050	7458	2559
Glühlampen- und Leuchtröhrenindustrie	6308	3309	54208	32887	0.788	42716	25915	6772	7832	1969
XI. Feinmechanische und optische Industrie										
Optische, fein- und medizinmechanische Industrie	26267	41875	142995	228008	0.712	101813	162341	3876	3877	2023
Herstellung von orthopädischen Erzeugnissen und hygienischen Bandagen	3057	3113	10128	13355	0.716	7252	9562	2372	3072	1434
Grossuhrenindustrie	116	12137	383	53873	0.608	233	32755	2008	2699	1509
Taschen- und Armbanduhrenindustrie	1402	7521	3875	31483	0.556	2155	17504	1537	2327	1431
XII. Metallwarenindustrie und verwandte Gewerbe										
Metallwarenindustrie	65147	81823	417531	523411	0.389	162420	203607	2493	2488	1538
Bronzefarbenindustrie	0	1038	0	12665	0.466	0	5902		5686	1787
Herstellung von metallische Überzügen	1288	5572	5225	24445	0.54	2822	13200	2191	2369	
Schriftgiessereien	356	1492	2288	9826	0.836	1912	8215	5372	5506	2746
Herstellung von Stempelapparaten und Gummistempeln	1028	1296	3544	4986	0.865	3066	4313	2982	3328	1677
Edelmetall- und Schmuckwarenindustrie	359	22244	4404	103823	0.542	2387	56272	6648	2530	1313
Füllfederhalterindustrie	806	1604	4696	9517	0.603	2832	5739	3513	3578	1326

	Employment East Germany	Employment West Germany	Sales Value East Germany	Sales Value West Germany	F (x)	Value Added East Germany	Value Added West Germany	Labour Productivity EG	Labour Productivity WG	Average Wages
Bearbeitung technischer Diamanten	23	425	127	2630	0.53	67	1394	2934	3279	1920
Bearbeitung von Edel- Halbedel- und synthetischen Edelsteinen	0	7637	0	22385	0.887	0	19855		2600	1298
Kleinmusikinstrumentenindustrie	4223	3797	20897	14905	0.631	13186	9405	3122	2477	1347
Herstellung von Saiten aller Art	957	255	3851	1222	0.629	2422	768	2531	3013	1148
Herstellung von Sprechmaschinen	56	1172	322	5533	0.648	208	3586	3721	3059	1393
Herstellung von Schallplatten	104	266	1181	2392	0.793	936	1897	9005	7131	2520
Spielwarenindustrie (einschl. Herstellung von Christbaumschmuck)	7425	10581	26997	46805	0.593	16009	27755	2156	2623	1197
XIII. Industrie der Steine und Erden										
Steinbruchindustrie und Natursteinbearbeitung	24960	61418	74865	170973	0.875	65507	149602	2624	2436	1442
Schieferindustrie	2579	2455	5347	6720	0.865	4625	5813	1793	2368	1238
Gewinnung von Findlingsguarziten und sonstigen Guarzitgestein	71	1263	193	2854	0.922	178	2631	2506	2083	*1365*
Gewinnung und Aufbereitung von Naturasphaltgestein	16	858	116	5505	0.534	62	2940	3863	3426	1582
Mineralmühlen-und Aufbereitungsbetriebe	123	517	1026	8234	0.463	475	3812	3863	7374	1823
Baukies und Bausandgruben und baggereien	4077	8125	14748	42475	0.914	13480	38822	3306	4778	1589
Glassand, Formsand, Klebsand, und sonstige Guarzsandgruben	1163	1789	3888	9722	0.925	3596	8993	3092	5027	1569
Kinselgurgruben	41	739	53	1608	0.913	48	1468	1180	1987	1408
Gewinnung und bearbeitung von Torf	0	8103	0	13996	0.808	0	11309		1396	1239
Gewinnung und Aufbereitung von Kreide	0	301	0	1798	0.794	0	1428		4743	1761
Farbedegruben	3	232	5	436	0.891	4	388	1485	1674	786
Kinselkreidegruben	0	304	0	1083	0.874	0	947		3114	1571
Schwersquatgruben	24	1595	104	5916	0.697	72	4123	3020	2585	1643
Sqeckstein und Talkumgruben	0	85	0	385	0.864	0	333		3913	1419
Feldsqatgruben und -werke	2	126	1	517	0.919	1	475	460	3771	1653
Rohton und Bleicherdegruben	1061	3710	4461	12694	0.922	4113	11704	3877	3155	1515
Kaolingruben (einschl. Aufbereitungsanlagen)	863	957	4126	3475	0.878	3623	3051	4198	3188	1473
Kalkindustrie	4414	16474	25249	89903	0.698	17624	62752	3993	3809	1638

	Employment East Germany	Employment West Germany	Sales Value East Germany	Sales Value West Germany	F (x)	Value Added East Germany	Value Added West Germany	Labour Productivity EG	Labour Productivity WG	Average Wages
Magnesitgruben und -werke	0	0	0	0	0.765					1039
Zementindustrie	2857	14162	39150	191667	0.571	22355	109442	7825	7728	2072
Gipsindustrie	1226	1571	6089	7019	0.686	4177	4815	3407	3065	1519
Mörtelwerke	275	345	3504	5771	0.576	2019	3324	7340	9634	2214
Edelputzwerke	150	323	1189	2543	0.543	645	1381	4302	4274	1539
Ziegelindustrie	39119	71619	109795	219005	0.811	89044	177613	2276	2480	1527
Kalksandsteinindustrie	1459	3374	8858	20984	0.629	5572	13199	3819	3912	1629
Bimsbaustoffindustrie	6	5389	11	30011	0.594	7	17827	1089	3308	1771
Schlackenindustrie	1360	3046	8822	18877	0.553	4878	10439	3587	3427	1890
Betonwaren und Betonwerksteinindustrie	5308	9894	22519	46262	0.609	13714	28174	2584	2848	1521
Asbestzementindustrie	126	1628	1124	12454	0.704	791	8768	6280	5386	1905
Leichtbauplattenindustrie	193	1834	1042	16852	0.562	585	9471	3033	5164	1560
Steinholzindustrie	384	1259	2331	9764	0.675	1574	6590	4098	5235	1868
Herstellung von Korkstein- u. Kieselgurwaren und sonstigen Erzeugnissen für Temperatur und Schalschutz	411	1850	3172	16276	0.548	1738	8919	4229	4821	1777
Industrie feuer- und säurefester Erzeugnisse	2341	14186	12623	90790	0.586	7397	53203	3160	3750	1838
Steinzeugindustrie	1253	3106	6438	20842	0.774	4983	16132	3977	5194	1822
XIV. Keramische Industrie										
Feinkeramische Industrie	32750	42093	109624	146944	0.768	84191	112853	2571	2681	1369
Schleifmittelindustrie	1403	4228	12825	45189	0.639	8195	28876	5841	6830	2188
XV. Glasindustrie										
Glashüttenindustrie	22012	24512	92510	133481	0.708	65497	94505	2976	3855	1579
Hohlglas veredelnde und Glas verarbeitende Industrie	6132	1186	32579	5330	0.678	22089	3614	3602	3047	1131
Flachglas veredelnde Industrie	1871	3828	9662	23400	0.559	5401	13081	2887	3417	1413
XVI. Sägeindustrie										
Sägewerke (einschl. Schwellen- und Mastenfabriken)	23666	47224	154673	344494	0.429	66355	147788	2804	3130	1248

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Hobelwerke	678	4956	12191	59863	0.289	3523	17300	5196	3491	1966
Furnierwerke	1216	3095	13433	25501	0.566	7603	14434	6253	4664	1630
Holzimprägnieranstalten	828	1924	8569	24700	0.779	6675	19241	8062	10001	1903
XVII. Holz verarbeitende Industrie										
Sperrholzindustrie	351	10374	2362	77765	0.498	1176	38727	3351	3733	1421
Möbel- und Bauteileindustrie	39258	87885	191200	428505	0.557	106498	238677	2713	2716	1461
Klavier-, Harmonium- und Orgelbau	1713	2452	7210	10138	0.593	4276	6012	2496	2452	1723
Holzwarenindustrie	13844	23542	61051	102657	0.611	37302	62724	2694	2664	1253
Holzmehlindustrie	110	173	1067	1475	0.632	674	932	6130	5388	1440
Fassholzsägerei und Fassindustrie	1117	4479	4951	22404	0.396	1961	8872	1755	1981	1376
Kistenindustrie	4451	6354	24697	38712	0.444	10965	17188	2464	2705	1292
Holzwolleindustrie	258	891	1339	4592	0.481	644	2209	2497	2479	958
Stuhlrohrfabriken	0	1017	0	4909	0.605	0	2970		2920	1762
Korbwaren- und Korbmöbelindustrie	990	4023	1939	17877	0.698	1353	12478	1367	3102	765
Herstellung von Schilrohr- und Strohgeweben, Flaschenhülsen und Trinkhalmen	398	1024	1218	4150	0.504	614	2091	1543	2042	784
Korkindustrie	445	1865	2286	8104	0.637	1456	5163	3272	2768	1002
Borsten- Faserstoff- und Haarzurichtereien	166	450	1130	3550	0.474	535	1683	3225	3740	1016
Bürsten- und Pinselindustrie	4179	7649	19784	40042	0.528	10446	21142	2500	2764	1144
Herstellung von Waren aller Art aus chemischen Kunststoffen sowie aus natürlichen Schnitz- und Formerstoffen	8616	11268	35287	50023	0.581	20502	29063	2380	2579	1231
XVIII. Chemische Industrie										
Schwefelsäureindustrie	1261	3457	13871	48471	0.577	8003	27968	6347	8090	2630
Sulfat und Salzsäureindustrien	343	1027	2927	11778	0.42	1229	4947	3584	4817	2530
Sodaindustrien	2499	2708	29656	42855	0.463	13731	19842	5494	7327	2663
Alkalielektoolyse Industrien (???)	3681	1876	58096	41191	0.578	33579	23808	9122	12691	2699
Herstellung von Wasserstoffsuperoqyd, Natriumgerborat, u.a. Perverbindungen	85	924	1586	20589	0.659	1045	13568	12294	14684	3090

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Herstellung von Schwefel, Schwefelkohlenstoff u. Rhodanverbindungen	223	291	3633	4322	0.51	1853	2204	8309	7575	2393
Herstellung von Cyan- u. Eisencyanverbindungen	267	510	4315	10961	0.438	1890	4801	7079	9413	2673
Wasserglas und Bleicheindustrie	230	735	3097	14835	0.629	1948	9331	8471	12695	2357
Herstellung von Metallsalzen u.a. Chemikalien	3304	5539	50347	87277	0.439	22102	38315	6690	6917	2491
Stickstoffindustrien	8908	10988	154406	130164	0.446	68865	58053	7731	5283	2781
Industrien des Phosphors	1184	2431	32895	61478	0.298	9803	18320	8279	7536	2552
Karbid und Kalkstikstoffindustrien	1990	3664	35828	92214	0.282	10103	26004	5077	7097	2547
Thomasschlackenmühlen	0	1333	0	67179	0.094	0	6315		4737	2287
Holzverkohlungsindustrien	206	1387	7846	15842	0.423	3319	6701	16111	4831	1824
Herstellung von Essigsäuren aus Acetylen	42	1908	436	52148	0.179	78	9334	1858	4892	2865
Lösungsmittelindustrie	2448	1415	38132	37780	0.43	16397	16245	6698	11481	2428
Industrie der organischen Säuren und ihrer Salze	907	1698	16469	18128	0.473	7790	8574	8589	5050	2433
Industrie der organischen Zneischenprodukte	1029	7177	12613	141982	-0.305	-3847	-43305	-3739	-6034	2989
Teerfarbenindustrie	700	8406	17385	232439	0.937	16290	217795	23271	25910	3166
Pharmazeutische Industrie	1195	13326	10346	193245	0.769	7956	148605	6658	11152	2665
Bearbeitung von Drogen	4066	10171	43706	121473	0.704	30769	85517	7567	8408	1880
Industrie der ätherischen Öle und Rimhstoffe	1876	809	24234	11417	0.532	12892	6074	6872	7508	2614
Herstellung von Gerb- und Farbstoffextrakten	103	555	1160	8579	0.497	577	4264	5597	7682	2678
Herstellung von Nitrozellulose und davon abgeleiteten Produkten	3726	2379	59372	27768	0.485	28795	13468	7728	5661	2096
Herstellung von Ozetylzellulose, Viskosefolien, u.a. Zelluloseprodukten	324	3173	6649	48857	0.601	3996	29363	12334	9254	2244
Photographische Industrie	5256	4298	63804	48345	0.521	33242	25188	6325	5860	2246
Industrie der Kunststoffen	1071	4004	19498	67660	0.431	8404	29161	7847	7283	2554
Sprengstoffindustrie	8838	5252	99596	75864	0.422	42030	32015	4756	6096	2126
Herstellung von Zündstoffen und Sprengkapseln	2019	2872	9941	17001	0.523	5199	8892	2575	3096	1507

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Littogonn, Blancfix und Titani..ssindustrie	370	2363	3183	29976	0.544	1732	16307	4680	6901	2567
Herstellung von Bleineniss, Bleiqlätte und Blei…	96	651	1700	15254	0.386	656	5888	6835	9045	2611
Buntfarbenindustrie	759	2049	6857	23897	0.46	3154	10993	4155	5365	2138
Herstellung von Zinkweiss	0	323	0	8308	0.402	0	3340		10340	2645
Erdfarbenindustrie	147	775	995	4042	0.522	519	2110	3533	2722	1754
Russ und Schwärzindustrie	47	626	616	5827	0.51	314	2972	6687	4747	2334
Herstellung von verdichteten Gasen	668	2764	10550	42327	0.758	7997	32084	11971	11608	2826
Aktivkohleindustrie	301	314	2872	4158	0.743	2134	3089	7089	9839	2505
XIX. Chemisch-technische Industrie										
Pyrotechnische und Zündwarenindustrie	1685	807	10015	6456	0.59	5909	3809	3507	4720	1298
Zündholzindustrie	565	2119	4887	17520	0.815	3983	14279	7049	6738	1388
Herstellung von Glühstrümphen	784	68	3497	372	0.753	2633	280	3359	4121	1393
Herstellung von Naturharzprodukten	216	585	4840	9184	0.441	2134	4050	9882	6923	2377
Herstellung von Klebstoffen	980	2213	12679	31568	0.481	6099	15184	6223	6861	1968
Lack und Anstrichmittelindustrie	3009	9985	51816	171413	0.51	26426	87421	8782	8755	2235
Herstellung von Druckfarben und Druckwalzenmassen	1618	1411	24672	19732	0.615	15173	12135	9378	8601	2697
Farbwarenindustrie	500	3603	4047	29164	0.593	2400	17294	4800	4800	1675
Bleistiftindustrie	0	3482	0	18633	0.61	0	11366		3264	1875
Herstellung von Linoleum, Wachstuch, Kunstleder und verwandten Erzeugnissen	2104	5365	24054	78106	0.513	12339	40069	5865	7469	2225
Wachsveredlungsindustrie	89	341	995	8758	0.353	351	3091	3948	9066	2089
Herstellung von Kerzen und Wachserzeugnissen	2083	8509	24374	84943	0.579	14113	49182	6775	5780	1656
Stearindustrie	0	552	0	10311	0.453	0	4671		8462	2292
Seifen-, Waschmittel- und Glyzerinindustrie	4473	13197	99638	277452	0.551	54901	152876	12274	11584	2067
Kosmetische Industrie	2074	6524	27362	91610	0.693	18962	63486	9143	9731	1829
Herstellung von Hilfsmitteln für die Textil- und Lederindustrie	1463	1483	23272	39158	0.596	13870	23338	9480	15737	2628
Herstellung von Atemschütz und Frischluftguterärten	2540	623	21737	9142	0.62	13477	5668	5306	9098	1848

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XX. Kautschuk- und Asbestindustrie										
Herstellung von Kautschukwaren (ausgenommen Bereifungen und Gummischuhe)	7299	24349	48946	171698	0.638	31228	109543	4278	4499	2029
Bereifungsindustrie	513	14062	10463	182309	0.503	5263	91701	10259	6521	2341
Gummischuhindustrie	657	3850	2609	19967	0.633	1651	12639	2514	3283	1415
Herstellung von Kautschuk-Regeneraten, -Plastikaten und -Präparaten	109	863	1229	8243	0.52	639	4286	5865	4967	1960
Herstellung von Guttapercha- und Balatawaren	34	235	539	3716	0.565	305	2100	8957	8934	2473
Asbestindustrie	2382	2381	19769	17681	0.708	13996	12518	5876	5258	1805
XXI. Papier-, Pappen-, Zellstoff- und Holzstoffindustrie										
Holzschleifereien	2536	2371	39933	32622	0.357	14256	11646	5621	4912	1687
Zellstoffindustrie	3113	6988	45024	110815	0.461	20756	51086	6668	7310	2032
Papier- und Pappenfabriken	27374	36587	276918	401418	0.385	106613	154546	3895	4224	1749
XXII. Druck und Papierverarbeitung										
Papierveredelungsindustrie	4026	5400	45999	74503	0.368	16927	27417	4205	5077	1749
Druckgewerbe	58159	111171	311092	655096	0.642	199721	420571	3434	3783	2116
Chemigraphisches Gewerbe	905	3076	4102	16465	0.894	3667	14720	4052	4785	2419
Buchbindereien	5109	9702	27709	53646	0.714	19784	38303	3872	3948	1635
Papierwarenindustrie	10968	21077	64179	169259	0.465	29843	78706	2721	3734	1324
Pappen verarbeitende Industrie	17022	19427	92793	103321	0.498	46211	51454	2715	2649	1186
Tapetenindustrie	288	2465	3089	23501	0.576	1779	13536	6179	5491	1908
XXIII. Lederindustrie										
Lederfabriken und Gerbereien	9627	34206.36	138139	444934	0.444	61334	197551	6371	5775	1802
Lederzurichtereien	357	1322.181	2022	10945	0.593	1199	6491	3360	4909	1459
Schuhindustrie	23963	75112.6	145489	477698	0.435	63288	207799	2641	2766	1406
Ledertreibriemenindustrie (einschl. Herstellung technischer Lederartikel)	1043	2425.956	12219	27464	0.341	4167	9365	3995	3860	1630
Leder- und Sattlerwarenindustrie	8835	26256.25	50981	179449	0.45	22941	80752	2597	3076	1351

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Lederhandschuhindustrie	3512	2012.478	18877	11761	0.431	8136	5069	2317	2519	1286
XXIV. Textilindustrie										
Kunstseiden- und Zellwollindustrie	12313	20449	88652	189278	0.604	53546	114324	4349	5591	1772
Wollwäscherei	282	37	1046	122	0.117	122	14	434	386	1417
Wollwäscherei und Wollkämmerei	2129	6189	6309	21883	0.13	820	2845	385	460	1842
Kammgarn- und Ramiespinnerei und -zwirnerei	27702	19545	255833	162245	0.371	94914	60193	3426	3080	1309
Reissgereien	1375	2189	16638	27088	0.442	7354	11973	5349	5469	1260
Streichgarnspinnerei und -zwirnerei	18032	11578	151177	105851	0.257	38852	27204	2155	2350	1205
Baumwollspinnerei und -zwirnerei	30524	77171	172675	554384	0.385	66480	213438	2178	2766	1229
Flachs- und Hanfrösterei	1122	1659	4014	5136	0.435	1746	2234	1556	1347	961
Flachsspinnerei und -zwirnerei	2197	3547	12434	18900	0.42	5222	7938	2377	2238	1068
Hanf- und Hartfaserspinnerei und -zwirnerei	919	7471	6466	63851	0.404	2612	25796	2842	3453	1324
Jutespinnerei und -zwirnerei	3653	7584	20152	44360	0.44	8867	19518	2427	2574	1135
Seidenweberei	4143	41592	30423	302493	0.434	13203	131282	3187	3156	1519
Bekleidungsstoffweberei	50950	29720	506023	283691	0.519	262626	147235	5155	4954	1393
Allgemeine weberei*	64909	127255	432928	1020576	0.424	183562	432724	2828	3400	1366
Wirk- u. Strickwarenindustrie	94571	50924	518500	266958	0.498	258213	132945	2730	2611	3200
Nähfäden-, Stopf-, Stick- und Handarbeitsgarnherstellung	3004	10073	20410	73660	0.466	9511	34325	3166	3408	1387
Herstellung von Band- und Flechtartikeln, Posamenten usw.	7263	18986	42497	111758	0.569	24181	63590	3329	3349	1287
Herstellung von Stickereien, Spitzen usw.	9158	2999	53385	17127	0.547	29202	9368	3189	3124	1003
Herstellung von Zelften, Planen, Säcken	1923	4650	30462	51990	0.329	10022	17105	5211	3679	1360
Filzherstellung	1156	2365	11827	16757	0.411	4861	6887	4204	2913	1652
Industriewatteherstellung	613	1018	4727	7954	0.656	3101	5218	5060	5125	1334
Verbandwatteherstellung	415	685	4041	3485	0.399	1612	1391	3885	2030	1295
Herstellung von Verbandmitteln	821	2055	7573	17221	0.373	2825	6424	3439	3126	1200
Rosshaarspinnerei und Stepperei	132	958	1788	10027	0.41	733	4111	5536	4293	1444
Netzindustrie	764	748	3982	3379	0.537	2138	1815	2799	2426	1109
Textilausrüstungs- und Veredelungsindustrie	27450	33073	149144	279510	0.493	73528	137798	2679	4166	1653

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XXV. Bekleidungsindustrie										
Bekleidungsindustrie	93189	110020	676812	720617	0.482	326223	347338	3501	3157	1271
Pelzveredelung	3845	64	16758	302	0.782	13105	236	3409	3665	1532
Pelzverarbeitung	2032	2420	19133	17368	0.445	8514	7729	4191	3193	1275
XXVI. Industrie der Öle und Fette, Futtermittel und tierischen Leime										
Ölmühlen	1133	7723	32405	300571	0.31	10046	93177	8866	12065	2351
Ölveredelungsindustrie	219	2887	14713	258955	0.306	4502	79240	20558	27447	2622
Talgschmelzen	181	533	7461	20671	0.206	1537	4258	8492	7989	2028
Schmalzsiedereien	237	230	13810	12870	0.128	1768	1647	7459	7162	1984
Margarine- und Speisefettfabriken	1098	8691	36498	303985	0.352	12847	107003	11701	12312	2513
Abdeckereien	572	669	2499	3407	0.776	1939	2644	3390	3952	1009
Knochenverwertungsindustrie	585	751	7670	9130	0.372	2853	3396	4877	4522	1653
Fischmehl- und Tranfabriken	13	733	78	14686	0.409	32	6007	2454	8195	2201
Herstellung von Haut- und Lederleim, Gelatine und Kunstdärmen	829	3301	7310	34673	0.566	4137	19625	4991	5945	1775
Futtermittelindustrie	1289	4420	37864	174309	0.177	6702	30853	5199	6980	1928
XXVII. Spiritusindustrie										
Landwirtschaftliche Kartoffelbrennereien	2862	524	36569	9118	0.246	8996	2243	3143	4282	1760
Melassebrennereien	137	66	2115	1366	0.336	711	459	5187	6954	2429
Hefelüftungsbrennereien	349	2019	8173	35767	0.647	5288	23141	15152	11462	2660
Spiritusreinigungsanstalten u. Spiritusvergällung in Monopollägern	788	756	71088	80948	0.198	14075	16028	17867	21195	2616
Kornbrennereien	58	1096	694	15487	0.278	193	4305	3326	3928	1485
Weinbrennereien	44	275	884	6381	0.322	285	2055	6411	7482	2213
Herstellung von Trinkbranntweinen aller Art	2620	8665	55565	229181	0.277	15391	63483	5874	7327	1360
XXVIII. Nahrungs- und Genussmittelindustrie										
Getreidemüllerei	8337	18377	361559	965552	0.21	75927	202766	9108	11034	1948
Schälmühlen	247	1771	7400	62417	0.222	1643	13857	6640	7826	2319

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Brodindustrie und Bäckereien	4080	11401	65080	179257	0.34	22127	60947	5423	5346	2124
Fleischwarenindustrie	5390	12651	144111	393004	0.249	35884	97858	6657	7735	1727
Fischindustrie	708	16496	6523	123854	0.35	2283	43349	3227	2628	1122
Zuckerindustrie	32511	24202	321539	293109	0.292	93889	85588	2888	3536	1259
Süsswarenindustrie	24234	35381	241752	385130	0.437	105646	168302	4359	4757	1511
Obst- und Gemüsekonservenindustrie	11002	20860	73527	125872	0.329	24190	41412	2199	1985	1109
Herstellung von Rheinischkraut	0	1040	0	6602	0.368	0	2430		2336	932
Obstsaft- und Fruchtweinindustrie	1051	1966	12040	21140	0.349	4202	7378	4000	3752	1233
Dauermilchindustrie	508	1700	10202	67303	0.372	3795	25037	7470	14728	1717
Schmelzkäseindustrie	14	1731	170	31821	0.295	50	9387	3654	5422	1432
Teigwarenindustrie	914	4427	10141	61019	0.344	3488	20991	3817	4741	1482
Kartoffeltrocknerei	1174	231	6619	657	0.347	2297	228	1956	987	872
Stärke- und Stärkeveredelungsindustrie	3461	1346	64903	19200	0.491	31867	9427	9208	7004	1481
Nährmittelindustrie	708	10190	10726	156528	0.562	6028	87969	8513	8633	2468
Kaffee-Ersatz-Industrie	1561	3703	34275	58517	0.42	14396	24577	9222	6637	2424
Malzindustrie	1711	2371	46386	61564	0.191	8860	11759	5178	4959	2104
Brauindustrie (einschl. Braumälzerei)	18819	49220	226285	735568	0.7	158399	514898	8417	10461	2753
Traubenschaumweinindustrie	88	1776	809	27359	0.577	467	15786	5311	8888	1687
Essigindustrie	498	1801	6140	24726	0.547	3359	13525	6746	7509	1628
Senfindustrie	375	739	3818	7592	0.557	2127	4229	5667	5724	1580
Gewürzindustrie	175	881	3360	18131	0.32	1075	5802	6131	6588	1531
Tabakindustrie	29785	119110	365368	771087	0.609	222509	469592	7471	3942	989
XXIX. Baugewerbe	322673	604247	1777572	3371525	0.6	1066543	2022915	3305	3348	
XXX. Elektrizitäts-, Gas-, und Wasserversorgung										
Elektrizitätswerke	29730	69868	471438	1051970	0.565	266363	594363	8959	8507	2643
Gaswerke	14506	32802	154449	393781	0.694	107187	273284	7389	8331	2497
Wasserwerke	4026	11421	60150	184916	*0.645*	38797	119271	9637	10443	2570
Total	2308910	5014443	17721191	43937227		9105066	21586854	3943	4305	

Sources:

BArch R3102/ 3309; Beschäftigte and Absatz
BArch R3102/ 5922; Absatzwert (=1) minus “Rohstoffe, Halbfabrikate, Kraftstoffe” (=F(x)); and the average wages.

The territorial composition of East and West Berlin is the following:
East Berlin: Berlin-Mitte, Prenzlauer Berg, Horst Wessel, Treptow, Köpenick, Lichtenberg, Weissensee, Pankow
West Berlin: Kreuzberg, Zehlendorf, Schöneberg, Steglitz, Tempelhof, Neukölln, Tiergarten, Charlottenburg, Spandau, Wilmersdorf, Wedding, Reinickendorf

The territorial composition of East and West Germany is the following:
East Germany: Mecklenburg, Brandenburg, Sachsen (Provinz), Thüringen, Sachsen, Anhalt, Berlin-Ost
West Germany: Bayern, Württemberg, Baden, Hessen-Nassau, Hessen, Saarland, Rheinprovinz, Westfalen, Hannover, Hamburg, Schleswig-Holstein, Bremen, Oldenburg, Braunschweig, Lippe, Schaumburg-Lippe, Berlin-West

There are some difficulties with the borders between East Germany and Poland. Before World War II the Oder-Neisse was not an important division line between administrative units. It divides the pre-war *Länder* Pommern, Brandenburg and Schlesien. The East German territory in this study includes Brandenburg, although some parts of it are east of the Oder-Neisse. This compensated by the omission of the territories of the *Länder* Pommern and Schlesien. Annex D shows a map.

Annex C Nominal value of the Capital stock

(1) Regional statistics

Sources: Statistisches Jahrbuch für das Deutsche Reich 1934, 1937 and 1941/42 for capital; Länderrat des Amerikanischen Besatzungsgebiets, *Statistisches Handbuch von Deutschland 1928-1944* (München 1949) for population, see Jaap Sleifer, *United, Divided and Reunited: Comparative Economic Performance of the East and West German Economies from 1936 to 1997* (Amsterdam 1999); *Statistisches Jahrbuch der Deutschen Demokratische Republik*, 1952; The population figures for 1940 actually show the year 1939. For 1936 some interpolations were made for Saarland and Lübeck, using time series of Walter G. Hoffmann, *Das Wachstum der deutschen Wirtschaft seit der Mitte des 19. Jahrhunderts* (Berlin 1965); furthermore the figures for Saarland 1932 had to be converted from French to German currency for some of the firms. I used the "Devisenkurse in Berlin" where 100 franc were valued 15.21 Reichsmark.

(2) Branch statistics

Sources: Statistisches Jahrbuch für das Deutsche Reich 1937; BArch R 3102/ 3309; Using the archive material on employment in combination with the statistics on capital, capital labour ratios for Germany were calculated. These capital labour ratios were used to calculate East and West German capital. The result is "expected" capital in industries according to the composition. Furthermore a capital labour ratio for East and West German industries was estimated.

(1) Regional statistics

West Germany

	1932	1936	1940
Berlin (61.7%)	3950.7	3442.6	3444.5
Schleswig-Holstein	161.8	142.4	142.2
Hannover	479.5	439.3	325.9
Westfalen	1149.3	966.8	1340.9
Hessen Nassau	1693.9	1449.9	1342.4
Rheinprovinz	4009.5	3367.0	3573.8
Bayern-a	1321.8	1253.1	1191.7
Bayern-b	110.6	91.8	100.7
Württemberg	553.5	500.2	522.1
Baden	569.6	515.5	527.1
Hessen	270.3	247.4	219.6
Hamburg	1019.4	988.2	946.8
Oldenburg	50.4	45.4	33.9
Braunschweig	126.0	120.2	101.8
Bremen	305.4	272.8	241.4
Lippe	11.1	10.4	9.3
Schaumburg-Lippe	3.0	0.7	0
Lübeck	69.9	67.5	*71.1*
Saarland	*90.6*	*89.7*	*172.3*
Total capital stock	15946.3	14010.9	14307.5
Population	39792.9	41640.6	41209.6
Capital per capita	0.40	0.34	0.35

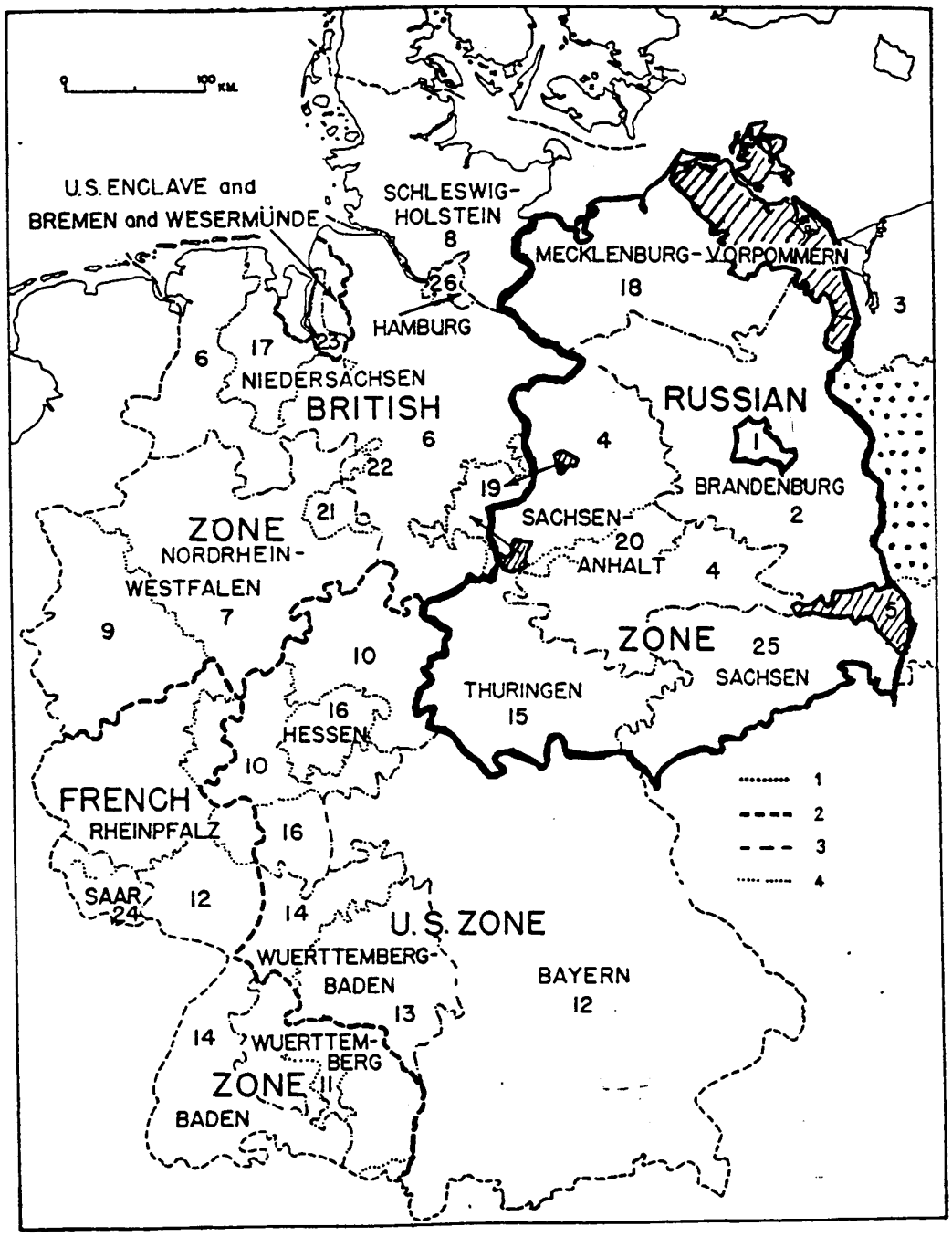
East Germany

	1932	1936	1940
Berlin (38.3%)	2452.4	2137.0	2138.2
Brandenburg	232.2	196.8	161.4
Sachsen-a	743.3	672.5	531.3
Sachsen-b	1541.7	1297.7	1372.4
Mecklenburg	31.0	27.9	29.4
Anhalt	225.1	217.1	327.8
Thüringen	292.3	268.3	274.7
Total capital stock	5518.0	4817.3	4835.2
Population	15702.0	16181.7	16745.0
Capital per capita	0.35	0.30	0.29
EG (WG = 100)	88	88	83

(2) Branch Statistics

	K/L-ratio	Employment		Capital	
		East Germany	West Germany	East Germany	West Germany
1. Industrie der Grundstoffe					
dav. III. Bergbau	5468.135	88794	403338	485.5376	2205.507
dar. 1. Gewinnung von Steinkohlen					
1a. Steinkohlenbergbau/Eisengewinnung (und Weiterverarbeitung)					
2. Gewinnung von Braunkohlen					
3a. Kalibergbau					
4. Gewinnung u. Aufber. von Erzen					
4a. Erzbergbau mit Eisen u. Metallgewinnung (u. Weiterverarbeitung)					
IV 1. Baustoffindustrie	341.5788	93008	228475	31.76956	78.04221
dar. Zementindustrie	7863.866	2857	14162	22.46707	111.3681
V Eisen u. Stahlgewinnung (auch kombinierte Werke)	1116.23	51523	305700	57.5115	341.2314
VI Metallhütten u. Metallhalbzeugwerke (auch kombinierte Werke)	2909.728	23455	49663	68.24767	144.5058
XIII. 1. Papiererzeugung (auch Zellstoffherstellung)	2041.108	33023	45946	67.40352	93.78076
2. Verarbeitende Industrie					
dav. IV 2. Feinkeramik und Glasindustrie	1112.242	34153	46321	37.98639	51.52015
dar. Glasfabrikation	1178.604	30015	29526	35.37581	34.79947
VII Herstellung v. Eisen- Stahl- Metallwaren	248.1346	173195	495278	42.97567	122.8956
VIII 1. Maschinen u. Apparatebau (auch Eisenbau)	1061.956	193613	404942	205.6085	430.0306
VIII 2. Fahrzeugbau	1537.596	121078	165907	186.1691	255.098
VIII 3. Schiffbau	954.2215	3166	69912	3.021065	66.71153
IX Elektrotechnische Industrie	2408.557	74229	217202	178.7848	523.1435
X Optische u. Feinmechanische Industrie	665.8355	30842	64646	20.5357	43.0436
XI Chemische Industrie	7147.887	98878	185950	706.7688	1329.15
XII Textilindustrie	899.4501	367522	484518	330.5677	435.7998
dar. Spinnerei u. Weberei (auch Kunstseiden)					
XIII 2. Papierverarbeitung	227.8097	37413	58071	8.523046	13.22914
XIV Vervielfältigungsgewerbe (einschl. Filmindustrie)	586.5425	59064	114247	34.64354	67.01072
dar. Filmindustrie					
XV Leder- und Linoleumindustrie	575.3221	49440	146701	28.44393	84.40033
XVI Kautschuk- u. Asbestindustrie	1372.549	10994	45740	15.0898	62.78039
XVII Holz u. Schnitzstoffgewerbe	226.0214	102284	220645	23.11837	49.87049
XVIII 1. Musikinstrumentenindustrie					
XVIII 2. Spielwarenindustrie					
XIX. Nahrungs u. Genussmittelindustrie	1834.26	160365	386710	294.1511	709.3267
dar. 1. Mühlenindustrie					
2. Zuckerfabriken					
3. Brauereien u. Mälzereien					
XX Bekleidungsgewerbe	382.5477	99065	112505	37.89709	43.03853
3. XXII Wasser- Gas- u. Elektrizitätgew. U. versorgung	6394.062	18531	44223	118.4884	282.7646
dar. Elektrizitätswerke u. damit verbundene Betriebe	20980.73	29730	69868	623.757	1465.882
XXI Baugewerbe	84.81266	322673	604247	27.36676	51.2478
Total		2220116	4611105	3206.672	6890.67

Annex D Territorial coverage of the Census



East German territory which is not covered

Covered territory which is not East Germany

Source: Robert E. Dickinson, *Germany: A General and Regional Geography* (London 1953) p 368

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